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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,923	02/12/2002	Ho-Jin Kweon	1567.1026	3755
21171	7590	05/05/2004	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			WILLS, MONIQUE M	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,923

Applicant(s)

KWEON ET AL.

Examiner

Wills M Monique

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6 and 8-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24 is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8-23 and 25-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Amendment filed March 1, 2004. The rejection of claims 25-26 under 35 U.S.C. 102(b) as being anticipated by Wang U.S. Patent 5,783,328, is overcome. The rejection of claims 1,3-6, 8,9, & 11-14 under 35 U.S.C. 102(b) as being anticipated by Ohnishi et al. U.S. Patent 5,200,282, is overcome. The rejection of claims 1-9, 11,12,23 & 25-26 under 35 U.S.C. 102(b) as being anticipated by Amatucci et al. U.S. Patent 5,705,291, is overcome. However, the rejection will be reinstated once the new matter is removed. The rejection of claims 1-5 under 35 U.S.C. 103(a) as being unpatentable over Wang, and further in view of Miyamoto et al., U.S. Patent 6,582,855, is overcome. The rejection of claims 10, 15-22, 23-24 & 27-28 under 35 U.S.C. 103(a) as being unpatentable over Amatucci et al., U.S. Patent 5,705,291, in view of Jen U.S. Pub. 2002/0071913 and further in view of Howard U.S. Patent 6,558,844, is overcome. However, the rejection will be reinstated once the new matter is removed. Claims 1,3-6, 8-16, 23 & 25-28 are rejected under 35 U.S.C. 112, first paragraph, for failing to comply with the written description requirement. Claims 1,3-6,8-16, 23 & 25-28 would be allowable over the prior art of record, if rewritten or amended to overcome the 112 first paragraph rejection set forth in this Office Action. Claim 24 is allowable over the prior art of record. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amatucci et al. U.S. Patent

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5,705,291 in view of Jen U.S. Pub. 2002/0071913. Claims 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kweon et al. U.S. Pub. 2002/0076486 in view of Jen U.S. Pub. 2002/0071913.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1,3-6, 8-16, 23 & 25-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant claims require that "the surface-treatment layer does not include lithium". However, there is no support in the specification for the exclusion of lithium as a surface-treatment material. On page 6, paragraph 23, the instant specification discloses that any coating element that is soluble in the solvent may be used. Tetrahydrofuran and ether are listed as organic solvents (¶ 25). Lithium salts are soluble in many organic solvents including tetrahydrofuran and ethyl ether (See column 7, lines 55-68 & column 8, lines 5-10 of U.S. Patent 6,682,856, submitted

herewith). Therefore, the specification embraces lithium compounds because of their solubility in organic solvents.

Allowable Subject Matter

Claim 24 is allowable over the prior art of record, because the prior art is silent to a LiCoO_2 positive active material coated with a hydroxide, oxyhydroxide, oxycarbonate or hydroxycarbonate of Al or B.

Claims 1,3-6,8-16, 23 & 25-28 would be allowable over the prior art of record, if rewritten or amended to overcome the 112 first paragraph rejection set forth in this Office Action. The instant claims would be allowable over the prior art of record, because the prior art is silent to a positive active material coated on a current collector, wherein the positive active material is surface-treated with a hydroxide, oxyhydroxide, oxycarbonate or hydroxycarbonate, and the surface-treatment layer does not include lithium.

The prior art of record, such as Amatucci U.S. Patent 5,705,291, teaches an active material coated with lithium hydroxide. The instant claims are patentably distinct from Amatucci, because the claims specifically exclude lithium as a surface treatment material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amatucci et al. U.S. Patent 5,705,291 in view of Jen U.S. Pub. 2002/0071913.

Amatucci teaches coating a current collector with an active material comprising LiMn_2O_4 , the active material is coated with boron oxide or aluminum oxide and heated to a temperature of about 400°C (col. 2, lines 15-30). The active material is coated on a current collector (col. 2, lines 57-68).

Amatucci is silent to dip-coating the active material in the coating solution.

Jen teaches that it is conventional to dip coat active material on the current collector in order to uniformly distribute the thickness of the coating and increase adhesion between the collector and the active material (pars. 4 & 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the dipping method of Jen when making the electrode of Amatucci in order to uniformly distribute the thickness of the coating and increase adhesion between the collector and the active material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kweon et al. U.S. Pub. 2002/0076486 in view of Jen U.S. Pub. 2002/0071913.

With respect to claims 17 & 29, Kweon teaches a method of making a positive active material including coating LiCoO_2 with aluminum or boron and drying the resulting mixture (¶ 29 & 45). With respect to claims 18 & 21, the concentration of the coating solution is 0.1 to 50 wt %. With respect to claims 19 & 22, the drying of the coating is performed from 100 to 1000°C for 1 to 20 hours (¶39).

Kweon is silent to coating a current collector with active material (claims 17, 19, 20 & 22), dipping a coated current collector in a solution comprising Al or B (claims 17 & 29).

Jen teaches that it is conventional to dip coat active material on the current collector of an electrode. The dipping method uniformly distributes the thickness of

the coating and increase adhesion between the collector and the active material (pars. 4 & 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the current collector of Jen in the electrode of Kweon, to extract energy from the active material.

Regarding the dipping method, it would have been obvious to employ the dipping method of Jen in the electrode of Kweon, in order to uniformly distribute the thickness of the coating and increase adhesion between the collector and the active material.

Response to Arguments

Applicant's arguments, with respect to claims 25-26 rejected under 35 U.S.C. 102(b) as being anticipated by Wand U.S. Patent 5,783,328 have been fully considered and are persuasive. The rejection has been withdrawn.

Applicant's arguments, with respect to the rejection of claims 1-5 under 35 U.S.C. 103(a) as being unpatentable over Wang, and further in view of Miyamoto et al. U.S. Patent 6,582,855 have been fully considered and are persuasive. The rejection has been withdrawn.

Applicant's arguments, with respect to the rejection of claims 1,3-6, 8,9, & 11-14 under 35 U.S.C. 102(b) as being anticipated by Ohnishi et al. U.S. Patent 5,200,282, have been fully considered and are persuasive. The rejection has been withdrawn.

The rejection of claims 1-9, 11,12,23 & 25-26 under 35 U.S.C. 102(b) as being anticipated by Amatucci et al. U.S. Patent 5,705,291, is overcome. However, the rejection will be reinstated once the new matter is removed. The rejection of claims 10, 15-22, 23-24 & 27-28 under 35 U.S.C. 103(a) as being unpatentable over Amatucci et al. U.S. Patent 5,705,291, in view of Jen U.S. Pub. 2002/0071913 and Howard U.S. Patent 6,558,844, is overcome. However, the rejection will be reinstated once the new matter is removed.

A new ground rejection is applied to claims 17-22 under 35 U.S.C. 103(a) as being unpatentable over Kweon et al. U.S. Pub. 2002/0076486 in view of and Jen U.S. Pub. 2002/0071913.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

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If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mw

05/01/04

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